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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,280	12/08/2006	Winfried Bunsmann	BU-19PCT	9540
40570	7590	08/12/2010		
Lucas & Mercanti LLP 475 Park Avenue South New York, NY 10016			EXAMINER VANAMAN, FRANK BENNETT	
			ART UNIT 3618	PAPER NUMBER
			MAIL DATE 08/12/2010	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,280

Applicant(s)

BUNSMANN ET AL.

Examiner

Frank B. Vanaman

Art Unit

3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2010 has been entered.

Status of Claims

2. Claims 1-14 are pending, with claim 14 being newly added.

Claim Rejections - 35 USC § 112

3. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 recites the presence of a contact brake surface frictionally engaging the moving part, however claim 1 from which this claim depends, no longer refers to the conversion of relative motion between the parts to mechanical energy. As such, it is not clear whether or not this mechanical brake surface is intended to be recited as a further element beyond the electric or hydraulic conversion which is explicitly recited in claim 1. Care should be taken to ensure that the specification as originally filed supports the limitations which are recited in the claims.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2 and 4-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al. (US 3,211,491) in view of Margolis et al. (US 5,570,286).

6. Browne et al. teach a motor vehicle (11) having a body or frame (12, 13, 14) provided with at least one horizontally oriented strut (19) which can move longitudinally relative to the body as a result of longitudinal stress and/or deformation of the body, including plural parts which move with respect to each other (21, 22) and extend over at least almost the entire strut (note figure 1), the portions movable with respect to an energy converter (26) which at least partially converts kinetic energy of motion into

another form of energy (e.g., heat due to internal friction associated with the deformation of the converter) damping the relative motion. Browne et al. fail to teach the energy converter as explicitly converting the energy into one of electric or hydraulic energy, and further being connected to an energy storage device, including a pressure medium reservoir which may be compressed by a moving part, or a coil that is penetrated by a moving part of the strut. Margolis teaches that it is well known to provide different types of converters for absorbing relative motion between movable portions of a strut (note strut and converter assemblies 104, 114, 20a, 20b, 20c, 47, 47', etc), which are connected to an energy storage device (32, or 78, or 92), the arrangement optionally including at least a pressure medium reservoir (67, 68, 67', 68' or 94, 95) which can be compressed by a moving part (70, or 70', or 96), and/or wherein fluid can be moved by the moving part (70, 71), and/or wherein a coil arrangement (44) is penetrated by a magnet (42) to generate electricity (to be stored in 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to use one of the alternative converter devices as taught by Margolis (and which may be alternatively usable) - the compressible reservoir, the fluid moving reservoir or the electrical coil arrangement, in place of the arrangement taught by Browne et al. which does not capture the dissipated energy, for the purpose of capturing the energy associated with the deformation, facilitating more efficient vehicle operation rather than wasting the energy which has been dissipated. As regards claim 7, the reference to Margolis et al. teaches that the storage device (32) may be a capacitor, but does not explicitly teach that the device is a battery. In that it is well known to use a battery to store captured energy for extended periods of time, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the storage device taught by Margolis as a battery, rather than a capacitor, for the purpose of facilitating longer term storage of the captured energy.

As regards claim 10, the reference to Browne et al. as modified by Margolis et al. fails to specifically teach that the movement of the relatively movable parts of the converter "can be more than a millimeter". Where a general condition is taught (in this case, the relative movement between the members), an adjustment of the magnitude of

the condition is known to be within the skill of the ordinary practitioner, at least when such an adjustment yields a predictable result. In this case, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow the motion of the relatively movable parts to be more than a millimeter in order to facilitate damping of higher amplitude vibrations which result in relative body motion of a magnitude greater than one millimeter, such as the damping of vibration associated with a very rough road or badly balanced tire.

As regards claim 11, the reference to Browne et al. fails to specifically teach the use of a common energy converter to which more than one strut is connected. Browne et al. do teach that the strut portions closer to the vehicle cabin (away from the viewer, figure 1) are mounted close to one another, and in that it is well held in the mechanical arts to be within the skill of the ordinary practitioner to (1) reposition an already taught element and to (2) integrate plural elements into a single element, it would firstly have been obvious to one of ordinary skill in the art at the time of the invention to reposition the converter portions of the struts proximate one end of each strut taught by Browne et al. such as proximate the vehicle cabin, for the purpose of reducing the size of the strut portion which is located over the open compartment, thus allowing improved access to the contents of the compartment, such as the engine and in that such a repositioning would place the converter portions very closely proximate one another, it would secondly have been obvious to one of ordinary skill in the art at the time of the invention to integrate both converters into a single assembly which mounts the cabin end portions of each strut, for the purpose of condensing the space required to locate and mount the converters (in that both converters would be mounted in a common single housing or on a common single mount) and reducing the number of parts required to mount the struts at their respective ends proximate the cabin.

As regards claim 14, the reference to Browne et al. as modified by Margolis et al. fails to specifically teach that the strut portions are installed horizontally below an underbody of the vehicle. It is very well known to locate a stiffening strut beneath a vehicle underbody and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the stiffening struts taught by Browne et al. as

modified functionally by Margolis et al., beneath a vehicle underbody for the purpose of reducing torsional movement of the vehicle chassis and frame, and/or to advantageously connect the struts in a location where they do not interfere with access to the vehicle engine, and/or to raise the overall natural frequency of the frame, and/or optimize stiffness of the vehicle frame and/or to improve stability of the vehicle and/or to improve the quality of the driving feel of the vehicle to the passengers.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al. in view of Margolis et al. and Kohlmeier (US 5,466,005). Alternatively to the rejection of claim 14 as set forth above, the reference to Browne et al. as modified by Margolis et al. fails to specifically teach that the strut portions are installed horizontally below an underbody of the vehicle. Kohlmeier teaches that it is very well known to locate a stiffening strut (6, 8, 9) horizontally beneath a vehicle underbody (see figure 1) and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the stiffening struts taught by Browne et al. as modified functionally by Margolis et al., horizontally beneath a vehicle underbody as taught by Kohlmeier for the purpose of reducing torsional movement of the vehicle chassis and frame, and/or to advantageously connect the struts in a location where they do not interfere with access to the vehicle engine, and/or to raise the overall natural frequency of the frame, and/or optimize stiffness of the vehicle frame and/or to improve stability of the vehicle and/or to improve the quality of the driving feel of the vehicle to the passengers.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable, as best understood, over Browne et al. in view of Margolis et al. and Riad (US 5,934,419). The reference to Browne et al. as modified by Margolis et al. is discussed above and fails to teach the use of what is understood to be a further contact brake surface which engages a moving part to provide external frictional damping. Riad teaches that it is well known in the art of vibration damping to use a frictional damping device including a moving part (109, 110) which is frictionally engaged with a strut portion (interior of 101) to damp vibration, the arrangement taught to be beneficial to conditions involving

sudden movement between the relatively movable parts. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the converter portion taught by Browne et al., modified by Margolis et al. as having an external frictional absorber, including two relatively movable elements which are frictionally engaged with each other, as taught by Riad, for the purpose of providing a beneficially improved damping for high speed, high amplitude vibrations (i.e., characterized by the vibration amplitude having a very steep slope for a given period of time).

Response to Comments

9. Applicant's comments, filed with the amendment, have been carefully considered. Initially applicant asserts "Whether any appreciable heat is generated during this damping, is questionable. Still more questionable is whether any heat generated is sufficient to provide storable energy." The references provided by the examiner as supplementary evidence in the previous office action answer the first question. Internal and/or external friction in a deformable material generates heat which may at least be measured and thus is reasonably 'appreciable'. See Troyer at col. 2, lines 55+; Bremer, Jr., at col 1, lines 30+; Strader at col. 1, lines 51+; and Walters at col. 1, lines 15+. The question of generating heat to provide storable energy is moot in that applicant's claim no longer requires this function. Note that the reference to Margolis et al. teaches that it is well known to provide an energy recovery system which may be connected between two elements which move with respect to one another. Browne et al. teach two elements that may move with respect to one another in the two elements (e.g., 21, 22) of the strut. Both references are directed to the automotive arts, and in this case, the reference to Browne et al., which lacks an energy recovery arrangement connected with the relatively movable strut may be reasonably deemed ready for improvement by an arrangement such as taught by Margolis et al. which may be applied to an analogous relatively moving strut element to generate energy.

In response to applicant's argument that Margolis et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the

applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, initially, both Browne et al. and Margolis are directed to the provision of strut elements which absorb vibration, and are additionally both directly taught to be pertinent to- and usable in- an automotive vehicular environment. As such, they are certainly within the same problem solving arena (i.e., at least: [1] the absorption of vibration, [2] in a vehicular environment). At best, it is understood that applicant is asserting that Margolis et al. cannot be applied because it recovers energy from a larger range of motion than would be encountered by Browne et al., but even this argument is not found persuasive in that both absorbers will certainly experience relative movement (and as such, the apparatus of Margolis et al. would function if connected to an arrangement as taught by Browne et al.), and while the magnitude of the movement experienced by Browne et al. may be smaller (which may result in a lesser amount of energy recovered), energy would indeed still be recovered, as one of ordinary skill in the art would well recognize.

As regard claim 14, the examiner notes that the relocation of the stiffener strut to an alternate location which is, itself, very well known, would fall well within the skill of the ordinary practitioner. The reference to Kohlmeier further supports this assertion and is applied alternatively in combination with the references to Browne et al. and Margolis et al. Note further that at least the reference to Schwede et al. teach numerous reasons for providing a stiffener strut beneath an underbody portion of the vehicle, thus providing supplementary evidence that not only is such an arrangement well known to one of ordinary skill, its advantages and benefits are also quite well known and well documented in the prior art.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dorris (US 2,212,636) and Schwede et al. (US 5,074,587) teach that it is well known to provide stiffener struts horizontally below a vehicle underbody.

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11. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,

Or faxed to:

PTO Central Fax: 571-273-8300

F. VANAMAN
Primary Examiner
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